

\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 17:07:23 ON 02 AUG 2004

=> FIL STNGUIDE

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'STNGUIDE' ENTERED AT 17:07:34 ON 02 AUG 2004

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LAST RELOADED: Jul 30, 2004 (20040730/UP).

=> file agricola biosis embase caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	1.32	1.53

FILE 'AGRICOLA' ENTERED AT 17:20:53 ON 02 AUG 2004

FILE 'BIOSIS' ENTERED AT 17:20:53 ON 02 AUG 2004

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FILE 'CAPLUS' ENTERED AT 17:20:53 ON 02 AUG 2004

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=> s phytosulfokine and plant

L1 130 PHYTOSULFOKINE AND PLANT

=> duplicate remove l1

DUPLICATE PREFERENCE IS 'AGRICOLA, BIOSIS, EMBASE, CAPLUS'

KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n

PROCESSING COMPLETED FOR L1

L2 74 DUPLICATE REMOVE L1 (56 DUPLICATES REMOVED)

=> s l2 and arabidopsis

L3 8 L2 AND ARABIDOPSIS

=> d l3 1-8 ti

L3 ANSWER 1 OF 8 AGRICOLA Compiled and distributed by the National  
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(2004) on STN

TI Diversity of \*\*\*Arabidopsis\*\*\* genes encoding precursors for  
\*\*\*phytosulfokine\*\*\*, a peptide growth factor.

L3 ANSWER 2 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI Ligand-receptor pairs in \*\*\*plant\*\*\* peptide signaling.

L3 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI \*\*\*Plant\*\*\* signalling peptides.

L3 ANSWER 4 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI Peptide transport in \*\*\*plants\*\*\* .

L3 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
 TI Promotive effects of the peptidyl \*\*\*plant\*\*\* growth factor,  
 \*\*\*phytosulfokine\*\*\* -alpha, on the growth and chlorophyll content of  
 \*\*\*Arabidopsis\*\*\* seedlings under high night-time temperature  
 conditions.

L3 ANSWER 6 OF 8 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.  
 on STN  
 TI Leucine-Rich Repeat Receptor Kinases in \*\*\*Plants\*\*\* : Structure,  
 Function, and Signal Transduction Pathways.

L3 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI Proteins containing a conserved motif associated with regulation of  
 \*\*\*plant\*\*\* growth and genes encoding them and their use in  
 \*\*\*plant\*\*\* breeding

L3 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
 TI cDNA and protein sequences of \*\*\*Arabidopsis\*\*\* \*\*\*phytosulfokine\*\*\*  
 and their uses in regulation of \*\*\*plant\*\*\* growth in transgenic  
 \*\*\*plants\*\*\*

=> d l3 8 ibib ab

L3 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
 ACCESSION NUMBER: 2002:682845 CAPLUS  
 DOCUMENT NUMBER: 137:227716  
 TITLE: cDNA and protein sequences of \*\*\*Arabidopsis\*\*\*  
 \*\*\*phytosulfokine\*\*\* and their uses in regulation  
 of  
 \*\*\*plant\*\*\* growth in transgenic \*\*\*plants\*\*\*  
 INVENTOR(S): Sakagami, Yoji; Matsubayashi, Yoshikatsu; Yang, He  
 Ping  
 PATENT ASSIGNEE(S): Nagoya University, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 17 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	---	-----	-----	-----
JP 2002253241	A2	20020910	JP 2001-52946	20010227
EP 1243654	A1	20020925	EP 2002-3238	20020220
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2003032777	A1	20030213	US 2002-78678	20020221

PRIORITY APPLN. INFO.: JP 2001-52946 A 20010227

AB The invention provides cDNA and protein sequences of two  
\*\*\*Arabidopsis\*\*\* \*\*\*phytosulfokine\*\*\* , AtPSK2 and AtPSKL.  
Over-expression of AtPSK2 and AtPSKL gene in transgenic  
\*\*\*Arabidopsis\*\*\* increased the level of \*\*\*phytosulfokine\*\*\*  
.beta.  
which resulted in the stimulation of cell proliferation. The AtPSK2 and  
AtPSKL can be used for \*\*\*plant\*\*\* growth regulation in transgenic  
\*\*\*plants\*\*\* .

=> d 13 7 ibib ab

L3 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:814321 CAPLUS  
DOCUMENT NUMBER: 137:335306  
TITLE: Proteins containing a conserved motif associated with  
regulation of \*\*\*plant\*\*\* growth and genes  
encoding them and their use in \*\*\*plant\*\*\*  
breeding  
INVENTOR(S): Sauter, Margret; Lorbiecke, Rene; Mironov, Vladimir;  
Frankard, Valerie; Dillen, Willy; Lejeune, Pierre;  
Broekaert, Willem  
PATENT ASSIGNEE(S): Cropdesign N.V., Belg.  
SOURCE: PCT Int. Appl., 156 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002083901	A2	20021024	WO 2002-EP4035	20020411
WO 2002083901	A3	20030821		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1377666	A2	20040107	EP 2002-732597	20020411
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			

PRIORITY APPLN. INFO.: US 2001-283313P P 20010412  
WO 2002-EP4035 W 20020411

AB Rice proteins that contain a conserved sequence derived from the growth regulating protein \*\*\*phytosulfokine\*\*\* -.alpha. and that may play a role in controlling or altering patterns of \*\*\*plant\*\*\* growth and development are described. These proteins (GREP or Growth Regulating Proteins) or the genes encoding them may be used to later \*\*\*plant\*\*\* growth. Protein sequences and DNA sequences encoding them are reported. Furthermore, vectors comprising said DNA sequences are described, wherein

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FILE 'CAPLUS' ENTERED AT 17:25:36 ON 02 AUG 2004  
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=> FIL STNGUIDE

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	2.84	27.05

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-1.47

FILE 'STNGUIDE' ENTERED AT 17:26:11 ON 02 AUG 2004  
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FILE CONTAINS CURRENT INFORMATION.  
LAST RELOADED: Jul 30, 2004 (20040730/UP).

=> d l3 1-6 ibib ab

YOU HAVE REQUESTED DATA FROM FILE 'AGRICOLA, BIOSIS, EMBASE, CAPLUS' - CONTINUE?  
(Y)/N:y

L3 ANSWER 1 OF 8 AGRICOLA Compiled and distributed by the National  
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ACCESSION NUMBER: 2002:45996 AGRICOLA  
DOCUMENT NUMBER: IND23278534  
TITLE: Diversity of \*\*\*Arabidopsis\*\*\* genes encoding  
precursors for \*\*\*phytosulfokine\*\*\* , a peptide  
growth factor.  
AUTHOR(S): Yang, H.; Matsubayashi, Y.; Nakamura, K.; Sakagami, Y.  
AVAILABILITY: DNAL (450 P692)  
SOURCE: Plant physiology, Nov 2001. Vol. 127, No. 3. p.  
842-851  
Publisher: Rockville, MD : American Society of Plant  
Physiologists, 1926-  
CODEN: PLPHAY; ISSN: 0032-0889  
NOTE: Includes references  
PUB. COUNTRY: Maryland; United States  
DOCUMENT TYPE: Article; Conference  
FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension  
LANGUAGE: English

AB \*\*\*Phytosulfokine\*\*\* -alpha (PSK-alpha), a unique \*\*\*plant\*\*\*  
peptide growth factor, was originally isolated from conditioned medium of

asparagus (*Asparagus officinalis*) mesophyll cell cultures. PSK-alpha has several biological activities including promoting \*\*\*plant\*\*\* cell proliferation. Four genes that encode precursors of PSK-alpha have been identified from \*\*\*Arabidopsis\*\*\*. Analysis of cDNAs for two of these, AtPSK2 and AtPSK3, shows that both of these genes consist of two exons and one intron. The predicted precursors have N-terminal signal peptides and only a single PSK-alpha sequence located close to their carboxyl termini. Both precursors contain dibasic processing sites flanking PSK, analogous to animal and yeast prohormones. Although the PSK domain including the sequence of PSK-alpha and three amino acids preceding it are perfectly conserved, the precursors bear very limited similarity among

\*\*\*Arabidopsis\*\*\* and rice (*Oryza sativa*), suggesting a new level of diversity among polypeptides that are processed into the same signaling molecule in \*\*\*plants\*\*\*, a scenario not found in animals and yeast. Unnatural [serine-4]PSK-beta was found to be secreted by transgenic

\*\*\*Arabidopsis\*\*\* cells expressing a mutant of either AtPSK2 or AtPSK3 cDNAs, suggesting that both AtPSK2 and AtPSK3 encode PSK-alpha precursors. AtPSK2 and AtPSK3 were expressed demonstrably not only in cultured cells but also in intact \*\*\*plants\*\*\*, suggesting that PSK-alpha may be essential for \*\*\*plant\*\*\* cell proliferation in vivo as well as in vitro. Overexpression of either precursor gene allowed the transgenic calli to grow twice as large as the controls. However, the transgenic cells expressing either antisense cDNA did not dramatically decrease mitogenic activity, suggesting that these two genes may act redundantly.

L3 ANSWER 2 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 2003:523730 BIOSIS  
DOCUMENT NUMBER: PREV200300511129  
TITLE: Ligand-receptor pairs in \*\*\*plant\*\*\* peptide signaling.  
AUTHOR(S): Matsubayashi, Yoshikatsu [Reprint Author]  
CORPORATE SOURCE: Graduate School of Bio-Agricultural Sciences, Nagoya  
University, Chikusa, Nagoya, 464-8601, Japan  
matsu@agr.nagoya-u.ac.jp  
SOURCE: Journal of Cell Science, (October 1 2003) Vol. 116, No. 19,  
pp. 3863-3870. print.  
ISSN: 0021-9533 (ISSN print).  
DOCUMENT TYPE: Article  
LANGUAGE: English  
ENTRY DATE: Entered STN: 5 Nov 2003  
Last Updated on STN: 5 Nov 2003

AB Extensive studies on \*\*\*plant\*\*\* signaling molecules over the past decade indicate that \*\*\*plant\*\*\* cell-to-cell communication, as is the case with animal systems, makes use of small peptide signals and specific receptors. To date, four peptide-ligand-receptor pairs have been identified and shown to be involved in a variety of processes. Systemin and \*\*\*phytosulfokine\*\*\* (PSK), the first and second signaling peptides identified in \*\*\*plants\*\*\*, were isolated by biochemical purification based on their biological activities. Furthermore, their receptors have been biochemically purified from plasma membranes on the basis of specific ligand-receptor interactions. By contrast, the two other peptide signals, CLAVATA3 (CLV3) and the pollen S determinant SCR/SP11, were genetically identified during searches for specific ligands for receptors that had already been cloned. Systemin functions in the \*\*\*plant\*\*\* wound response, whereas PSK appears to cooperate with auxin and cytokinin to regulate cellular dedifferentiation and redifferentiation. CLV3 is important for meristem organization, binding to a heterodimeric receptor comprising the CLV1 and CLV2 proteins.

SCR/SP11 instead plays a role in self-incompatibility, where it activates a signalling cascade that leads to rejection of pollen with the same S haplotype. These ligands all seem to bind to receptors that possess intrinsic kinase activity, and at least two of them are generated by proteolytic processing of larger precursor proteins.

L3 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 2003:311361 BIOSIS

DOCUMENT NUMBER: PREV200300311361

TITLE: \*\*\*Plant\*\*\* signalling peptides.

AUTHOR(S): Wisniewska, Justyna [Reprint Author]; Trejgell, Alina [Reprint Author]; Tretyn, Andrzej [Reprint Author]

CORPORATE SOURCE: Department of Biotechnology, Nicolaus Copernicus University, Institute of General and Molecular Biology, Gagarina 9, 87-100, Torun, Poland

SOURCE: Acta Physiologiae Plantarum, (2003) Vol. 25, No. 1, pp. 105-122. print.

CODEN: APPLDE. ISSN: 0137-5881.

DOCUMENT TYPE: Article

General Review; (Literature Review)

LANGUAGE: English

ENTRY DATE: Entered STN: 2 Jul 2003

Last Updated on STN: 2 Jul 2003

AB Biochemical and genetic studies have identified peptides that play crucial roles in \*\*\*plant\*\*\* growth and development, including defence mechanisms in response to wounding by pests, the control of cell division and expansion, and pollen self-incompatibility. The first two signalling peptides to be described in \*\*\*plants\*\*\* were tomato systemin and \*\*\*phytosulfokine\*\*\* (PSK). There is also biochemical evidence that natriuretic peptide-like molecules, immunologically-related to those found in animals, may exist in \*\*\*plants\*\*\*. Another example of signalling peptide is ENOD40, a product of a gene, which became active early in the root nodulation process following Rhizobium infection of legumes. Other predicted bioactive peptides or oligopeptides have been identified by means of genetic, rather than biochemical methods. The \*\*\*Arabidopsis\*\*\* CLAVATA3 protein is required for the correct organization of the shoot apical meristem and the pollen S determinant S-locus cysteine-rich protein (SCR also called S-locus protein 11, SP11). The \*\*\*plant\*\*\* signalling peptides discovered so far are involved in various processes and play an important role in communication between cells or organs, respectively. This review will focus on these peptides and their role in intercellular signalling.

L3 ANSWER 4 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 2002:364378 BIOSIS

DOCUMENT NUMBER: PREV200200364378

TITLE: Peptide transport in \*\*\*plants\*\*\*.

AUTHOR(S): Stacey, Gary [Reprint author]; Koh, Serry; Granger, Cheryl; Becker, Jeffrey M.

CORPORATE SOURCE: Dept of Plant Microbiology and Pathology, University of Missouri, Columbia, MO, 65211, USA  
staceyg@missouri.edu

SOURCE: Trends in Plant Science, (June, 2002) Vol. 7, No. 6, pp. 257-263. print.

ISSN: 1360-1385.

DOCUMENT TYPE: Article

General Review; (Literature Review)

LANGUAGE: English  
ENTRY DATE: Entered STN: 3 Jul 2002  
Last Updated on STN: 3 Jul 2002

AB Recent completion of the \*\*\*Arabidopsis\*\*\* genome revealed that this organism has ten times more peptide transporters than any other sequenced organism (prokaryote or eukaryote). These transporters are found in three protein families: the ABC-type transporters; the di- and tripeptide transporters; and the newly described tetra- and pentapeptide oligopeptide transporters. The abundance of these transporters suggests that they play diverse and important roles in \*\*\*plant\*\*\* growth and development. Possible substrates for these transporters include glutathione, gamma-glutamyl peptides, hormone-amino acid conjugates, \*\*\*phytosulfokine\*\*\*, peptide-like compounds and peptide phytotoxins. However, the exact role of peptide transport in \*\*\*plants\*\*\* is still undefined.

L3 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN  
ACCESSION NUMBER: 2000:129930 BIOSIS  
DOCUMENT NUMBER: PREV200000129930  
TITLE: Promotive effects of the peptidyl \*\*\*plant\*\*\* growth factor, \*\*\*phytosulfokine\*\*\* -alpha, on the growth and chlorophyll content of \*\*\*Arabidopsis\*\*\* seedlings under high night-time temperature conditions.  
AUTHOR(S): Yamakawa, Seiyei; Matsubayashi, Yoshikatsu; Sakagami, Youji; Kamada, Hiroshi; Satoh, Shinobu [Reprint author]  
CORPORATE SOURCE: Institute of Biological Sciences, University of Tsukuba, Tsukuba, Ibaraki, 305-8572, Japan  
SOURCE: Bioscience Biotechnology and Biochemistry, (Dec., 1999) Vol. 63, No. 12, pp. 2240-2243. print.  
ISSN: 0916-8451.  
DOCUMENT TYPE: Article  
LANGUAGE: English  
ENTRY DATE: Entered STN: 12 Apr 2000  
Last Updated on STN: 4 Jan 2002

AB In order to investigate the function of the peptidyl \*\*\*plant\*\*\* growth factor, \*\*\*phytosulfokine\*\*\* -alpha (PSK-alpha), in \*\*\*plants\*\*\*, we examined the effect of PSK-alpha on the growth and chlorophyll content of \*\*\*Arabidopsis\*\*\* seedlings under high night-time temperature conditions. Although exposure to high night-time temperatures markedly reduced the fresh weight and chlorophyll content of the seedlings, these parameters in the \*\*\*plants\*\*\* supplied with PSK-alpha remained at the same levels as those of non-treated controls. These effects were not apparent when (2-5)PSK, Tyr-SO<sub>3</sub>H and kinetin were similarly supplied. The results suggest that PSK-alpha not only promotes cell proliferation, but may aid \*\*\*plants\*\*\* in their tolerance of heat stress.

L3 ANSWER 6 OF 8 EMBASE COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED. on STN  
ACCESSION NUMBER: 2004177825 EMBASE  
TITLE: Leucine-Rich Repeat Receptor Kinases in \*\*\*Plants\*\*\* : Structure, Function, and Signal Transduction Pathways.  
AUTHOR: Torii K.U.  
CORPORATE SOURCE: K.U. Torii, Department of Biology, University of Washington, Seattle, WA 98195, United States  
SOURCE: International Review of Cytology, (2004) 234/- (1-46).  
Refs: 117

ISSN: 0074-7696 CODEN: IRCYAJ  
COUNTRY: United States  
DOCUMENT TYPE: Journal; General Review  
FILE SEGMENT: 029 Clinical Biochemistry  
LANGUAGE: English  
SUMMARY LANGUAGE: English

AB Leucine-rich repeat receptor kinases (LRR-RKs) comprise the largest subfamily of transmembrane receptor-like kinases in \*\*\*plants\*\*\*, with over 200 members in \*\*\*Arabidopsis\*\*\*. LRR-RKs regulate a wide variety of developmental and defense-related processes including cell proliferation, stem cell maintenance, hormone perception, host-specific as well as non-host-specific defense response, wounding response, and symbiosis. Several studies indicate that LRR-RKs act as dimers, and some may form a receptor complex with leucine-rich repeat receptor-like proteins (LRR-RPs) that lack a cytoplasmic kinase domain. Despite the fact that structural features of LRR-RKs are fairly similar, five available ligand molecules for LRR-RKs are structurally diverse, from steroids (brassinolides) to peptides (\*\*\*phytosulfokine\*\*\* and systemin) and secreted proteins (CLV3). Precise ligand-binding sites of LRR-RKs are not understood. However, the extracellular "island" domain that intercepts the LRR domain in some LRR-RKs may play an important role in ligand binding. Advances in unveiling components of three LRR-RK signaling pathways, namely BRI1 in steroid signaling, CLV1 in meristem maintenance, and FLS2 in bacterial elicitor perception, revealed an intriguing link between \*\*\*plant\*\*\* LRR-RK and animal receptor signaling pathways. Finally, rapid progress made in LRR-RK research beyond the model system \*\*\*Arabidopsis\*\*\* has provided exciting, novel insights into the evolution of the LRR-RK signaling system in \*\*\*plants\*\*\*, such as BRI1 utilized in the wound-responsive signaling pathway in Solanaceae \*\*\*plants\*\*\* and recruitment of CLV1 in nodule development in leguminous \*\*\*plants\*\*\*.

=> s l2 and transform?

L2 CANNOT BE SEARCHED IN STNGUIDE

The L-number cannot be used because it does not contain a query.

Enter DISPLAY HISTORY to see the sequence of commands that created this L-number.

=> s phytosulfokine and plant and transform?

0 PHYTOSULFOKINE  
13 PLANT  
8 PLANTS  
21 PLANT  
(PLANT OR PLANTS)  
0 TRANSFORM?

L6 0 PHYTOSULFOKINE AND PLANT AND TRANSFORM?

=> file agricola biosis embase caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.90	43.43
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-1.47



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=> s phytosulfokine and plant and transform?

L7 8 PHYTOSULFOKINE AND PLANT AND TRANSFORM?

=> d l7 1-8 ti

L7 ANSWER 1 OF 8 AGRICOLA Compiled and distributed by the National  
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TI Diversity of Arabidopsis genes encoding precursors for  
\*\*\*phytosulfokine\*\*\* , a peptide growth factor.

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TI Effects of \*\*\*phytosulfokine\*\*\* -alpha on growth and tropane alkaloid  
production in \*\*\*transformed\*\*\* roots of Atropa belladonna.

L7 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Effects of \*\*\*phytosulfokine\*\*\* -alpha on growth and tropane alkaloid  
production in \*\*\*transformed\*\*\* roots of Atropa belladonna.

L7 ANSWER 4 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI Molecular cloning and characterization of OsPSK, a gene encoding a  
precursor for \*\*\*phytosulfokine\*\*\* -alpha, required for rice cell  
proliferation.

L7 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN

TI A rapid and efficient system of Agrobacterium infection-mediated transient  
gene expression in rice Oc cells and its application for analysis of the  
expression and antisense suppression of preprophytosulfokine, a precursor  
of \*\*\*phytosulfokine\*\*\* -alpha, encoded by OsPSK gene.

L7 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

TI Effects of \*\*\*phytosulfokine\*\*\* -.alpha. on growth and tropane alkaloid  
production in \*\*\*transformed\*\*\* roots of Atropa belladonna

L7 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

TI Molecular cloning and characterization of OsPSK, a gene encoding a  
precursor for \*\*\*phytosulfokine\*\*\* -.alpha., required for rice cell  
proliferation

L7 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN  
TI A rapid and efficient system of Agrobacterium infection-mediated transient gene expression in rice Oc cells and its application for analysis of the expression and antisense suppression of preprophytosulfokine, a precursor of \*\*\*phytosulfokine\*\*\* -.alpha., encoded by OsPSK gene

=> duplicae remove l7

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The previous command name entered was not recognized by the system.  
For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (=>).

=> duplicate remove l7

DUPLICATE PREFERENCE IS 'AGRICOLA, BIOSIS, CAPLUS'

KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n

PROCESSING COMPLETED FOR L7

L8 4 DUPLICATE REMOVE L7 (4 DUPLICATES REMOVED)

=> d l8 1-4 ibib ab

L8 ANSWER 1 OF 4 AGRICOLA Compiled and distributed by the National Agricultural Library of the Department of Agriculture of the United States of America. It contains copyrighted materials. All rights reserved.  
(2004) on STN DUPLICATE 1

ACCESSION NUMBER: 2002:45652 AGRICOLA  
DOCUMENT NUMBER: IND23278141  
TITLE: Effects of \*\*\*phytosulfokine\*\*\* -.alpha on growth and tropane alkaloid production in \*\*\*transformed\*\*\* roots of Atropa belladonna.  
AUTHOR(S): Sasaki, K.; Ishise, T.; Shimomura, K.; Kobayashi, T.; Matsubayashi, Y.; Sakagami, Y.; Umetsu, H.; Kamada, H.  
AVAILABILITY: DNAL (QK745.P56)  
SOURCE: Plant growth regulation, Jan 2002. Vol. 36, No. 1. p. 87-90  
Publisher: Dordrecht : Kluwer Academic Publishers.  
CODEN: PGRED3; ISSN: 0167-6903  
NOTE: Includes references  
PUB. COUNTRY: Netherlands  
DOCUMENT TYPE: Article  
FILE SEGMENT: Non-U.S. Imprint other than FAO  
LANGUAGE: English

AB \*\*\*Phytosulfokine\*\*\* (PSK)-alpha is a sulphated pentapeptide, isolated from the medium of cultured Asparagus officinalis mesophyll cells, that promotes cell proliferation. It is a putative key factor in conditioned medium required for the growth of low-density \*\*\*plant\*\*\* cell cultures. The present study investigates the effect of PSK-alpha on growth and tropane alkaloid production in Atropa belladonna hairy roots \*\*\*transformed\*\*\* with Agrobacterium rhizogenes (MAFF 03-01724). Although the growth rates of hairy roots cultured in medium with or without PSK-alpha for 4 weeks did not show any differences, the productivity of tropane alkaloids, especially of hyoscyamine, was enhanced by 10(-7) or 10(-8) M PSK-alpha. In addition, the content of tropane alkaloids in \*\*\*transformed\*\*\* roots treated with PSK-alpha was 1.4 times higher than that of untreated roots after 4 weeks of culture. The time course of growth and tropane alkaloid production in Atropa belladonna \*\*\*transformed\*\*\* roots suggested that PSK-alpha influenced the growth

of \*\*\*transformed\*\*\* roots during the active growing phase, but not tropane alkaloid production.

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ACCESSION NUMBER: 2002:45996 AGRICOLA  
DOCUMENT NUMBER: IND23278534  
TITLE: Diversity of Arabidopsis genes encoding precursors for \*\*\*phytosulfokine\*\*\*, a peptide growth factor.  
AUTHOR(S): Yang, H.; Matsubayashi, Y.; Nakamura, K.; Sakagami, Y.  
AVAILABILITY: DNAL (450 P692)  
SOURCE: Plant physiology, Nov 2001. Vol. 127, No. 3. p. 842-851  
Publisher: Rockville, MD : American Society of Plant Physiologists, 1926-  
CODEN: PLPHAY; ISSN: 0032-0889  
NOTE: Includes references  
PUB. COUNTRY: Maryland; United States  
DOCUMENT TYPE: Article; Conference  
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AB \*\*\*Phytosulfokine\*\*\* -alpha (PSK-alpha), a unique \*\*\*plant\*\*\* peptide growth factor, was originally isolated from conditioned medium of asparagus (*Asparagus officinalis*) mesophyll cell cultures. PSK-alpha has several biological activities including promoting \*\*\*plant\*\*\* cell proliferation. Four genes that encode precursors of PSK-alpha have been identified from Arabidopsis. Analysis of cDNAs for two of these, AtPSK2 and AtPSK3, shows that both of these genes consist of two exons and one intron. The predicted precursors have N-terminal signal peptides and only a single PSK-alpha sequence located close to their carboxyl termini. Both precursors contain dibasic processing sites flanking PSK, analogous to animal and yeast prohormones. Although the PSK domain including the sequence of PSK-alpha and three amino acids preceding it are perfectly conserved, the precursors bear very limited similarity among Arabidopsis and rice (*Oryza sativa*), suggesting a new level of diversity among polypeptides that are processed into the same signaling molecule in \*\*\*plants\*\*\*, a scenario not found in animals and yeast. Unnatural [serine-4]PSK-beta was found to be secreted by transgenic Arabidopsis cells expressing a mutant of either AtPSK2 or AtPSK3 cDNAs, suggesting that both AtPSK2 and AtPSK3 encode PSK-alpha precursors. AtPSK2 and AtPSK3 were expressed demonstrably not only in cultured cells but also in intact \*\*\*plants\*\*\*, suggesting that PSK-alpha may be essential for \*\*\*plant\*\*\* cell proliferation in vivo as well as in vitro. Overexpression of either precursor gene allowed the transgenic calli to grow twice as large as the controls. However, the transgenic cells expressing either antisense cDNA did not dramatically decrease mitogenic activity, suggesting that these two genes may act redundantly.

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DUPLICATE 2

ACCESSION NUMBER: 2000:324412 BIOSIS  
DOCUMENT NUMBER: PREV200000324412  
TITLE: A rapid and efficient system of Agrobacterium infection-mediated transient gene expression in rice Oc cells and its application for analysis of the expression

and antisense suppression of preprophytosulfokine, a precursor of \*\*\*phytosulfokine\*\*\* -alpha, encoded by OsPSK gene.

AUTHOR(S): Yang, Heping [Reprint author]; Morita, Akiko; Matsubayashi, Yoshikatsu; Nakamura, Kenzo; Sakagami, Youji  
CORPORATE SOURCE: Laboratory of Bioactive Natural Product Chemistry, Graduate School of Bio-Agricultural Sciences, Nagoya University, Chikusa, Nagoya, 464-8601, Japan  
SOURCE: Plant and Cell Physiology, (June, 2000) Vol. 41, No. 6, pp. 811-816. print.  
CODEN: PCPHA5. ISSN: 0032-0781.  
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Last Updated on STN: 7 Jan 2002

AB A rapid and efficient system for Agrobacterium infection-mediated transient gene expression in rice has been developed. Using this system, transient expression of preprophytosulfokine, a precursor of \*\*\*phytosulfokine\*\*\* -alpha, encoded by OsPSK gene was analyzed. The results suggest that the Agrobacterium infection-mediated transient gene expression system is as efficient in rice Oc cells as in tobacco BY-2 cells and might be useful for rapid analysis not only of foreign gene expression, but also of antisense gene suppression.

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DUPLICATE 3

ACCESSION NUMBER: 2001:102839 BIOSIS  
DOCUMENT NUMBER: PREV200100102839  
TITLE: Molecular cloning and characterization of OsPSK, a gene encoding a precursor for \*\*\*phytosulfokine\*\*\* -alpha, required for rice cell proliferation.  
AUTHOR(S): Yang, Heping [Reprint author]; Matsubayashi, Yoshikatsu; Hanai, Hidetoshi; Nakamura, Kenzo; Sakagami, Youji  
CORPORATE SOURCE: Laboratory of Bioactive Natural Product Chemistry, Graduate School of Bio-Agricultural Sciences, Nagoya University, Chikusa, Nagoya, 464-8601, Japan  
hyang@nagoya-u.ac.jp  
SOURCE: Plant Molecular Biology, (November, 2000) Vol. 44, No. 5, pp. 635-647. print.  
CODEN: PMBIDB. ISSN: 0167-4412.  
DOCUMENT TYPE: Article  
LANGUAGE: English  
ENTRY DATE: Entered STN: 28 Feb 2001  
Last Updated on STN: 15 Feb 2002

AB We previously characterized an OsPSK cDNA encoding a precursor of \*\*\*phytosulfokine\*\*\* -alpha (PSK-alpha), a peptide \*\*\*plant\*\*\* growth

factor. Southern blot analysis suggested that OsPSK is a single-copy gene in rice, which we have isolated and characterized. The OsPSK gene consists of one large intron and two exons. The 5-amino acid PSK-alpha sequence located close to the COOH-terminus of the precursor is encoded in the second exon. A putative TATA box was found at position-68 with respect to the transcription initiation site. Upstream of this sequence, several potential regulatory elements, including one CAAT-box, three CCAAT-boxes, one enhancer core-like sequence, and three E-boxes could be identified. By constructing plasmids with various lengths of the 5'-upstream regions of the OsPSK gene fused to the coding sequence for

bacterial beta-glucuronidase (GUS), we demonstrated a region 1.9 kb upstream of the transcription initiation point, which contains most of the putative 5'-regulatory elements, to be sufficient for maximal-level GUS expression in \*\*\*transformed\*\*\* rice Oc cells. The promoter of the OsPSK gene gave significantly higher levels of GUS expression than the CaMV 35S promoter. These results suggest that the OsPSK promoter could be useful for the constitutive expression of a foreign gene at high levels in \*\*\*transformed\*\*\* rice culture cells. Northern blot analyses suggest that the expression of OsPSK is reinforced by auxin and cytokinin.

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